

# The Job Revolution:



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# Employment for Today and Tomorrow

BY EDWARD GORDON

In July 2010, more than 14 million Americans were unemployed. Yet about 3 million mainly STEM-related jobs were vacant across the U.S. economy. More firms are beginning to report that even though there are huge numbers of available workers, those workers do not have the skills the firms want. Businesses are struggling to find the talent needed to compete in this new world.

This relatively high level of job vacancies seems to contradict the high level of U.S. joblessness. "If this is the new normal, it's more about the labor market than the GDP," states Glenn Hubbard, dean of the Columbia Graduate School of Business. "We have to help people face a new world." Patrick Larkin, director of the John Adams Innovation Institute in Massachusetts, terms today's biggest challenge in building a workforce as getting students from K-12 through postsecondary to understand and to prepare for available opportunities.

## Current Employment Opportunities

What jobs are currently in demand? The sixth annual McKinsey Global Survey (May 2010) asked executives about important market forces shaping the world economy. McKinsey and Company found that most executives were concerned that they will not be able to find the right kinds of talent to meet their business strategic goals over the next five years. Companies in North America experienced the most difficulty in recruiting individuals to fill jobs in the following categories:

1. Research and Development
2. Information Technology
3. Operations
4. Management
5. Sales

But how does this translate into specific occupations? Manpower's first quarter 2010 Talent Shortage Survey noted that 14 percent of U.S. employers reported difficulty in filling positions. The top 10 jobs for which vacancies were hardest to fill were:

1. Skilled Trades
2. Sales Representatives
3. Nurses
4. Technicians
5. Drivers
6. Restaurant and Hotel Staff
7. Management/Executives
8. Engineers
9. Doctors and Non-nursing Professionals
10. Customer Service Representatives

This Manpower report states that, "The underlying reasons for talent shortages are here to stay." This global talent mismatch will continue to grow until labor markets catch up to the job realities of the new world of technology. The educational preparation and skill set updates that employers are requiring are becoming ever more specific and refined. This is making it even more difficult for organizations to find the perfect candidate and for individuals to find a "good job."

## Future Help Wanted

By 2010, at least 63 percent of America's more than 46 million jobs will require some college education. This is the conclusion of economist Anthony P. Carnevale at Georgetown University's Center on Education and the Workforce in "Help Wanted: Projections of Job and Education Requirements Through 2010" (June, 2010). This analysis states that if the current education-to-employment system remains unchanged, in 2018 the United States will fall short by 3 million postsecondary degrees (associate or higher) of the 22 million college degrees needed in the workforce. The American labor market also will need at least 4.7 million new workers with postsecondary career certificates. The occupational areas with the highest percent of jobs requiring some type of postsecondary preparation are projected to be: STEM; education; healthcare professional and technical; community services and arts; and office managerial and professional.

Over the next 10 years, the U.S. and global economies will be more tech driven than ever. A whole new cascade of new tech products and services will be introduced around the world accelerating this occupational trend. There are many game-changing examples. A massive solar farm generating 392 megawatts of power by deploying huge banks of mirrors to focus solar radiation is slated for the Mojave Desert in southern California. Some experts now believe that eight such gigawatt plants could be operational by 2025. This



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is enough power for a city of 6 million. Computer chips are becoming so small and flexible that they will be embedded in such objects as clothing, refrigerators and furniture to offer multiple new data and information sources. Screens are becoming so thin and cheap that over the next 10 years semitransparent eyeglasses will apply an informational layer to reality.

Nanotechnology, the science of structures of incredibly minute size, offers the possibilities of life-changing breakthroughs. They include medical devices that can repair hearts or attack specific cancer cells without surgery, batteries that will last for months, power electric vehicles, and ultrasensitive nano devices that can detect oil or other minerals deep in the earth. But where will the additional technicians, engineers and scientists come from to develop all these new inventions?

### Changing Career Directions

Much as we might now regret that too many of our brightest students went into finance or law rather than physics or engineering, we need to remember that many of our best minds were pushed into technology because of the Cold War space and arms race with the Soviet Union. They propelled the exponential development of U.S. technological and scientific advances for the next 40 years. The 2008 to 2010 job and economic meltdown in the United States may become the new pivotal wake-up call that leads to massive changes in the U.S. education-to-employment system. Much needs to be done quickly to achieve this goal.

Over the past decade too many education surveys have reported how poorly the United States is doing in attracting students into scientific and technological fields of study. "It's like somebody brilliantly set out to undermine any prospect for the average kid—especially girls and minorities—to feel excited about science," says Dean Kamen, the inventor of the Segway scooter.

The development of career academies

constitutes a significant effort to boost student numbers and achievement in science and technology. The Chicago area has the largest concentration of small advanced technical manufacturing in the United States with more than 1.7 million jobs. Yet, the majority of these high-pay tech jobs will disappear if boomer retirees are not replaced. The Chicago Manufacturing Renaissance Council (CMRC), a public-private partnership, was begun in 2005 to help prepare high school students for a range of STEM careers.

In 2007 the CMRC launched the Austin Polytechnical Academy (APA) to prepare students for careers in advanced manufacturing. APA offers students a liberal arts education plus a core of engineering skills. A manufacturing technology center within the academy helps integrate classroom academics with hands-on career skills, and sponsoring businesses provide job shadowing and a summer job program.

In 2009 the CMRC opened the Chicago Academy for Advanced Technology. Its curriculum offers students preparation in information technology that can be applied to careers in a wide range of business sectors. Classroom instruction is supplemented with mentoring, internships and job shadowing from sponsoring businesses. More than 200 local businesses are partnering with the two career academies to build a new career tech pipeline. However, both academies recognize that not all students may wish to pursue a STEM career path upon graduation. "Our ultimate goal is to teach the problem-solving, communication, and real-world job skills that will enhance our graduates' career opportunities in any field they choose," states Dan Swinney, CMRC executive director.

### Career Planning

Students in all age groups and many parents often ask this researcher, "In the future what jobs will be in the greatest demand?" Contrary to prevailing popular culture, obtaining a four-year college

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degree may not be the principal key to success for everyone. According to the U.S. Bureau of Labor Statistics, of the 30 jobs projected to grow at the fastest rate over the next decade, only seven usually require a four-year degree.

When a person is deciding on a future career, he or she must consider the following questions:

- What are my greatest personal strengths?
- What career areas interest me?
- How can these strengths and interests apply to potential careers and jobs? Today? In the future?
- What skills and knowledge do I already possess that can be used in a specific job?
- What new job knowledge will I need to acquire through education and training?
- How do current or future job openings in my city, state or region reflect what I want to do?

He or she must consider using a career center (often at a community or four-year college) to discover what his or her greatest skill strengths and areas of personal interest are. Then that information must be used to plan for current and future job opportunities. If the individual lacks some of the required skills, he or she should pursue further education through career academies, apprenticeships, or postsecondary career preparation. They should also consider internships, online courses, reading, networking, or joining professional associations.

Employers today are looking for new employees who have both a solid liberal arts education, good verbal communication abilities, writing and thinking/problem-solving skills, plus specialized career knowledge. The future of the U.S. economy will be built around service industries (many of which will be tech-driven) and the export of complex technologies. Job opportunities will be excellent in science, technology, engineering, and math-related jobs—including all sectors of health care. However, since between 2010 and 2020, 70 percent of all hiring will be to replace retiring baby-boomers, there will be job opportunities in most skilled service, technical and professional career areas.

The current recession will eventually end. So the worker must ask, "Five to 10 years from now what job would I like to have?" If he or she doesn't know, personal steps must be taken to get an answer. Updating skills, not just getting a post-secondary degree, will count in finding a "good job" and for success throughout one's work life. ■

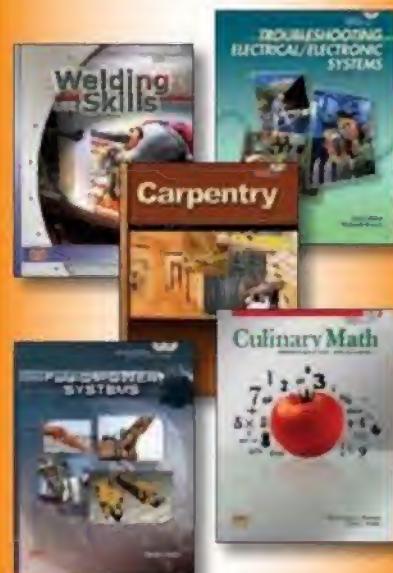
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